

REMARKS

Initially, Applicant thanks Examiner Cumberledge for withdrawing the finality of the previous office action. Claims 1-32 are pending. With this amendment, independent claims 1, 13 and 22 are currently amended, claims 2-11, 14-21 and 23-28 are original, claims 12, 29 and 30 are previously presented, and claims 31-32 are new.

I. Claim Rejections – 35 USC § 102

Claims 1, 12-18, 21 and 22 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,620,444 to Assaker. Respectfully, the Assaker reference does not show or suggest all of the elements of the claims, as amended, and therefore this rejection should be withdrawn.

Independent claims 1, 13 and 22, as amended, all recite that the shaft is non-hollow, solid across its entire cross-section and includes no internal cavity. Applicant respectfully disagrees with the Examiner's assessment that the rod 25 is "solid" because it is not liquid or gas. (Office Action, Page 12). However, to further prosecution in this case, Applicant has amended the claims to clarify the solid nature of the claimed shaft. As Applicant has previously pointed out, the shaft in Assaker is hollow and thus does include an internal cavity. The Assaker reference specifically indicates the advantage of the rod being hollow and not being solid (see column 6, lines 13-15 and 23-24) and illustrates the internal cavity of the rod due to its tubular configuration in at least Assaker's Figs. 12, 13, 15 and 17. For at least these reasons, independent claims 1, 13 and 22 and their dependent claims are not anticipated or rendered obvious by Assaker. It does not show a solid shaft 25 being solid across its entire cross-section and having no internal cavities, as the independent claims recite. Further, Applicant respectfully

asserts that making hollow shaft 25 *solid* goes against Assaker's teachings and fundamentally changes its operation.

Additionally, independent claims 1 and 13 recite that the second hook has a first end *unitary and integral* with the shaft, a feature not present in Assaker's device. Assaker's hooks (such as hooks 29 and 33) are not unitary and integral with the rod 25; rather, they are separate pieces designed and intended to slide over the rod 25 to provide adjustability of the relative distance of the hooks. Additionally, it would not be obvious to change Assaker's hooks to be unitary and integral with the rod at least because the specification touts and relies on this adjustability feature that would thus be eliminated if the hooks were made unitary and integral with the rod (see Abstract; col. 2, lines 5-8; col. 6, lines 1-5 and 33-34, etc.). For these reasons as well, independent claims 1 and 13 and their dependent claims are patentable over the Assaker reference.

Moreover, independent claims 13 and 22 recite that the curves in the first and second directions overlap and intersect— yet another feature not present in Assaker's device. The Office Action asserts that the first curve is the curve between the shaft and the end of the hook, the curve that forms the "hook". The Office Action also asserts that reference 21 is the second of the two curves. Not only are these curves not *continuous*, as Applicant has previously demonstrated with respect to independent claim 22, the "curves" of Assaker clearly do not overlap or intersect as presently claimed. Rather, the curves are separate "regions", with a first region 21 extended by a region 22 (see column 5, lines 19-24). As one can see from Assaker's Fig. 10, these regions take a on a successive, back-to-back arrangement.

Moreover, Assaker notes that the successive arrangement of the regions shown in Figs. 9-11 "has the same advantages as concerns safety as the arrangement of the upper hook shown in

FIGS. 6 to 8.” The first paragraph of column 5 of Assaker explains that that non-continuous, non-overlapping and non-intersecting curvature is valuable in its two-point bearing on a lamina, which is an improvement in terms of clearance over “a solely circular” bearing section (see column 5, lines 10-11). Therefore, Assaker does not disclose an overlapping and intersecting curved internal surface as recited in claims 13 and 22, and it explicitly teaches away from such a design. Accordingly, for these reasons as well, independent claims 13 and 22 and their dependent claims are not anticipated or rendered obvious by Assaker.

As shown in the present response and Applicant’s previous responses, the Assaker reference does not show or suggest all of the elements of independent claims 1, 13 and 22 and thus this rejection should be withdrawn. Additionally, dependent claims 12, 14-18 and 21 are patentable over Assaker based at least in part on their dependency from an allowable independent claim, and on their own merit as well.

II. Claim Rejections – 35 USC § 103

Claims 1-30 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,980,523 to Jackson in view of Assaker. The Examiner states that it would have been obvious to modify Jackson’s apparatus “with the first and/or second hooks having a ridge or an internal surface having a second curve of Assaker, in order to allow the interconnection apparatus to not only grasp rods, but to also appropriately grasp a vertebra.” (Office Action, Page 10). As explained above, Applicant respectfully asserts that Assaker does not disclose, teach or suggest the ridge and curved surfaces as claimed (such arguments will not be repeated with respect to the Section 103(a) rejection for the sake of brevity). Examiner Cumberledge is respectfully requested to reconsider and withdraw the rejections of claims 1-30 over these references.

Initially regarding independent claims 1 and 13, Jackson does not show or suggest a second hook having a first end *unitary and integral* with the shaft. Similar to the discussion above regarding the Assaker device, the Jackson device shows a separate hooked end 11, connector 54 and rotating link 53. In the Office Action, the Examiner reproduces Jackson's Fig. 5 and associates the claimed shaft with Jackson's link 53 and the claimed second hook with Jackson's hooked end 11. However, it's clear from Jackson's Fig. 5 that hooked end 11 is not unitary and integral with link 53, but rather these are separate components with a rotatable connection. Accordingly, Applicant respectfully asserts that independent claims 1 and 13 and their dependent claims are patentable over the Jackson / Assaker combination at least because of the failure of the Jackson reference (as well as the Assaker reference discussed above) to satisfy this feature of the claims. Further, it would not have been obvious to make the hooked end 11 unitary and integral with the link 53 at least because the integration of those components would eliminate the adjustability feature of the Jackson device (see col. 6, lines 32-48).

In responding to Applicant's arguments regarding the asserted combination, the Examiner states that the hooks in Jackson are capable of being used to grasp vertebrae. The Examiner specifically refers to the spinous processes and the gaps between them. Respectfully, Applicant is confused as to how the Jackson device could be used to grasp vertebrae, even the spinous process. As evident from Jackson's Fig. 4, the central portion of the device appears to be aligned with the rods engaged by the hooks. Thus, if the rods were replaced with bony structure, it becomes clear that the central portion would interfere and contact bony structure in between, which would prevent one or both of the hooks from engaging the desired area of the vertebrae. Further, the hooks clearly are not sized and configured to engage the entire of a spinous process, allowing the central portion to reside in the gaps therebetween. Additionally,

the Jackson disclosure could not be used in the same way as the Assaker structure in its Figure 1 because of the clearance issue defined in the Assaker reference (see column 5, first paragraph). The Jackson device provides a sought “low profile” for the device (see column 11, lines 24-33). Assaker, on the other hand, shows the hooks well in front of the structure between them (a “high profile”), and thus can be used to link laminae. These differences contradict the logic used to bring the Jackson and Assaker references together.

The Examiner also states that the locking mechanism of Jackson could still lock a rod in place if the Jackson hooks had a second curve and/or included a ridge as claimed. Applicant respectfully disagrees and asserts that such a curve or ridge would interfere with the operation of Jackson at least by reducing the effectiveness of the locking set screw. Further, a ridge in the ends of the Jackson device would result in uncertainty as to the orientation of the rod with respect to the connector. The cylindrical inside of Jackson’s hooks ensures that a rod within it is oriented in one and only one direction with respect to the hook. A ridge would allow the rod to pivot or assume any of a number of directions, making Jackson’s connection less secure and more difficult to use.

In responding further to Applicant’s arguments, the Examiner states that the deformation procedure in Assaker applies only to the shafts and connectors and does not teach away from the use of Assaker’s “curves” with Jackson’s device. Jackson and Assaker teach away from each other at least because Jackson’s device is directed to a connection system with infinitely continual movement and adjustment. Conversely, Assaker discusses permanent deformation to fix the positions of the components. Accordingly, one of ordinary skill in the art would not combine these references and look to the Assaker device providing permanent deformation for features to insert into the Jackson device providing continual adjustment capabilities.

Regarding dependent claims 10, 19, 20 and 27, the Examiner states that it would have been obvious to form the Jackson device as a one-piece unit. Applicant respectfully disagrees. The Jackson device is configured and designed to allow for adjustability to accommodate differences in distances between spinal rods (see col. 6, lines 45-48). This adjustability is accomplished by slidingly advancing the link 53 within the bore 13 (see col. 6, lines 32-41). Forming the Jackson device as a one-piece unit would destroy the adjustability of the device. Adjustability necessarily requires at least two components so that at least one may move relative to the other to provide any type of adjustability.

Based on at least the reasons given above, Applicant respectfully asserts that claims 10-30 are patentable over the asserted Jackson / Assaker combination and requests that this rejection be withdrawn.

Claims 19 and 20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Assaker. Applicant respectfully asserts that dependent claims 19 and 20 are patentable based at least on their dependency from allowable independent claim 13, and on their own merit as well. The Examiner states that it would have been obvious to form the Assaker device as a one-piece unit. Citing to the *Howard v. Detroit Stove Works* case (150 U.S. 164 (1893)), the Examiner states that forming an article in one piece which has formerly been formed in two pieces and put together involves only routine skill in the art. (Office Action, Page 10). However, Applicant respectfully asserts that the Examiner is overlooking the adjustability feature of the Assaker device. There are numerous discussions in the Assaker specification of the ability to adjust the relative position of the two hooks (see Abstract; col. 2, lines 5-8; col. 6, lines 1-5 and 33-34, etc.). Applicant respectfully asserts that if the Assaker device were formed as a one-piece unit, with the hooks and rod all being one piece, the adjustability of the relative distance between the

hooks by sliding the hooks along the rod would be lost and an important feature of the reference would be eliminated. As stated above, adjustability necessarily requires movement of at least one component relative to another, which a one-piece unit does not provide. Accordingly, as forming the device as a one-piece unit would clearly change the principle of operation of the device, it would not occur to one of ordinary skill in the art to make such a severe change to the device and there would be no desire to do so. For at least these reasons, Applicant respectfully asserts that dependent claims 19 and 20 are patentable over the cited references and request that this rejection be withdrawn.

III. Provisional Obviousness-Type Double Patenting Rejection

Claims 1, 13, and 22 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/695,067 "in view of Assaker (US Pat. 5,620,444)." As Applicant previously pointed out, the provisions of MPEP 804 do not appear to authorize or provide any example of reliance on a secondary reference for a double patenting rejection. Applicant respectfully requests the Examiner to reconsider this provisional double patenting rejection. If necessary, a proper terminal disclaimer may be filed in future. Applicant does not concede the basis of the provisional double patenting rejection, and reserves the right to address it further later in prosecution of this case.

IV. New Claims

New claims 31 and 32 are being offered, as indicated above. Support for these claims is found throughout the specification and drawings (see Figs. 26-29 and Page 23, line 28 – Page 24, line 20). No new matter has been added. Claims 31 and 32 are allowable over the Assaker and Jackson references for a number of reasons. Among these, claims 31 and 32 are dependent from

independent claims 1 and 13, respectively, which are allowable as discussed above. For these and other reasons, it is submitted that neither Assaker nor Jackson, either alone or in combination, anticipate or render obvious any of the pending claims, including the new claims submitted herewith.

V. Conclusion

It should be understood that the above amendments and remarks are not intended to provide an exhaustive basis for patentability or concede the basis for the rejections in the Office Action, but are simply provided to address the rejections made in the Office Action in the most expedient fashion.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance, and the Examiner is requested to pass the case to issue. If the Examiner should have any comments or suggestions to help speed the prosecution of this application, the Examiner is requested to contact the undersigned representative by telephone.

Respectfully submitted,

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